

Grades 6-8 Science Curriculum

RATIONALE

All students, regardless of different abilities, needs and interests, must to be able to use science in their everyday lives. We need science to understand and evaluate our personal health, the environment, and resource management. Students are naturally curious and should have enhanced opportunities to develop science skills through engagement in actively constructing ideas and forming explanations. Science assists students to fulfill personal ambitions and career goals in an ever-changing world.

DESCRIPTION/PURPOSE

The science curriculum requires participation in learning and is connected to other curriculum areas. Science helps students learn to use technology and generalize it into the community. Through science students will have a better understanding of the world around them and the impact they have on that world.

Students with severe disabilities are able to build on the following outcomes through the science curriculum:

- Use direct observation or personal experience to solve problems or complete tasks
- Use tools in daily living, vocational and leisure environments
- Practice safety measures during all weather conditions
- Care for themselves and their environment
- Recognize dangers in the environment and demonstrate safety skills
- Understand time concepts in relation to a daily routine
- Use information about living things to take care of plants, pets, and to maintain a healthy lifestyle
- Learn how to conserve resources in all environments

Content Description by Grade Level Span

Grade levels are divided into four segments; kindergarten-second grade; third-fifth grade; sixth-eighth grades; and, ninth-twelfth grades. Grade twelve can last up to four years. The curriculum is cumulative in that skills learned during the elementary years are expanded during the middle school grades and so forth. The goals and benchmarks for the student must be selected from the student's curricular grade span. We recognize that each student will accomplish the graduate goals by different means (goals mastered).

Science				Grades 6-8	
<u>Graduate Goal 1</u>	Graduates will communicate.	<u>Show-Me Standard SC-1</u> Properties and principles in matter and energy. <u>Alternate Framework Standard AltSC-1</u> Using the senses to detect physical properties: sorting, observing, and responding to changes; observing and using properties and effects of heat and light. <u>Alternate Process Standard:</u> (What All Students Should Do) Goal 3 Alt-6, Goal 3 Alt-8, Goal 4 Alt-7			
<u>Graduate Goal 2</u>	Graduates will make choices.				
<u>Graduate Goal 4</u>	Graduates will solve problems or complete tasks.				
<u>GLE:</u>	Not Available				
<u>STRAND:</u>	Not Available				
Authentic Llife Skills (What All Students Should Know)		IEP Code	API Code	Authentic Learning Activities	
Explore physical properties of objects using one or more of the five senses.		7810002	PP1.1b	Matching tactile/tangible symbol schedule with activity; match grocery list with actual objects; responding to auditory cues to anticipate activity.	
Put clean dishes away in the proper place.		6332021			
Sort objects into groups based upon one or more physical properties.		7810083	PP1.5a	Group items according to what is needed for bathing, washing dishes, clothing; discriminate between liquid and solids, heavy and light weight objects; gather items necessary for a recipe or art project.	
Sort clothing for washing.		6197004			
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.					

PHYSICAL PROPERTIES

Science					Grades 6-8	
<u>Graduate Goal 6</u>	Graduates will participate in cause and effect activities.	<u>Show-Me Standard SC-2</u> Properties and principles of force and motion. <u>Alternate Framework Standard AltSC-2</u> Observing and responding to the position, motion, and speed of objects in the environment, applying principles of force and motion through using simple tools. <u>Alternate Process Standard:</u> (What All Students Should Do) Goal 1 Alt-6, Goal 4 Alt-2, Goal 4 Alt-7				
<u>Graduate Goal 8</u>	Graduates will use an efficient method to access environments.					
<u>Graduate Goal 10</u>	Graduates will interact within the community.					
<u>GLE:</u>	Not Available					
<u>STRAND:</u>	Not Available					
Authentic Life Skills (What All Students Should Know)		IEP Code	API Code	Authentic Learning Activities		
Identify the relationship between force and motion.		7810003	FM3.2	Pushing clothes off wheelchair tray to sort white/darks; activating a switch; open various types of jars; cut apples for birds.		
Push switch to interact with computer software.		7200081				
Use keyboard to control program.		7200041				
Activate adaptive hardware to interact with the software programs.		7200106		Using a variety of switches to roll dice; placing draw cards from a game on a switch dial for student to pick via a switch.		
Turn computer on and off according to directions.		7200016				
Throw away item upon request.		7700089		Using wheelchair tray or table to push item off.		
Identify the position of an object relative to another object.		7810004	FM1.1	Identify who is first in line, which piece is bigger, next to, on top.		
Wipe clean and dry table surfaces.		7810064				
Cut with scissors.		5029013		Variety of cutting tools might include cutting with electric scissors or using a coupon cutter. Cut coupons for shopping, open sealed pouches, cut ribbon for art project, cut paper to wrap package, bundle papers with string.		
Open and close a variety of containers.		6326015		Soda can, game boxes, storage bin, condiment packets.		
Take objects out of a container.		5029001				
Place leftover food in the proper place.		6332016				
Store foods in designated area.		6509011		Put groceries/food away, food in containers, collect recipe foods.		
Store foods in refrigerated area.		6509010				
Put objects in a container.		5029003				
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.						

FORCE AND MOTION

Science Grades 6-8			
Graduate Goal 6	Graduates will participate in cause and effect activities.	Show-Me Standard SC-2 Properties and principles of force and motion. Alternate Framework Standard AltSC-2 Observing and responding to the position, motion, and speed of objects in the environment, applying principles of force and motion through using simple tools. Alternate Process Standard: (What All Students Should Do) Goal 1 Alt-6, Goal 4 Alt-2, Goal 4 Alt-7	
Graduate Goal 8	Graduates will use an efficient method to access environments.		
Graduate Goal 10	Graduates will interact within the community.		
GLE:	Not Available		
STRAND:	Not Available		
Authentic Life Skills (What All Students Should Know)		IEP Code	API Code Authentic Learning Activities
Spread food.		6263008	Spread peanut butter on apple and roll in bird seed; make toast and spread with a variety of toppings (butter, jelly, cream cheese). For a more substantial bread for spreading, use bagels.
Mash food.		6263007	Mash bananas for cookies or quick breads; mash peas for easier eating; mash potatoes for pancakes; make peanut butter ball candy.
Propel a wheelchair.		5171011	
Propel a wheelchair around stationary objects.		5171046	
Open a variety of doors.		7810090	
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.			

Science		Grades 6-8		LIVING ORGANISMS
<u>Graduate Goal 1</u>	Graduates will communicate.	<u>Show-Me Standard SC-3</u> Characteristics and interactions of living organisms.		
<u>Graduate Goal 3</u>	Graduates will express personal feelings and self-advocate for needs.	<u>Alternate Framework Standard AltSC-3</u> Observing and responding to needs and characteristics of living organisms, including skills related to the care of one’s self, plants and animals.		
<u>GLE:</u>	Not Available	<u>Alternate Process Standard:</u> (What All Students Should Do)		
<u>STRAND:</u>	Not Available	Goal 4 Alt-7		
Authentic Llife Skills (What All Students Should Know)		IEP Code	API Code	Authentic Learning Activities
Communicate observations and or events using words/symbols/pictures/objects/actions.		7810005	SI5.1	Use of tactile symbols; choice making with eye gaze; identify what is next; identify who prefers to sit next or first in line, who came into the room, and for what reason (speech, etc.). Exercise activity—(switch activated by student) students exercise to music until switch is released.
Express need for various types and levels of comfort.		7810006		Match temperatures to facial expressions/photos (popsicles, soup, ice cubes into glass, air popper, blow dryer); labeling why changing positions (mats to pillows to tumble form); signaling/switch to gain adult attention.
Ask questions about objects/people.		7810007	SI1.1a	Missing elements for problem solving—student asks for help or if you have the item. Teach social conversational skills—what did you do last night? How are you today? Are we having PE today? Why is the aide not here today?
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.				

Science Grades 6-8			
Graduate Goal 1	Graduates will communicate.	Show-Me Standard SC-4 Changes in ecosystems and interactions of organisms with their environment. Alternate Framework Standard AltSC-4 Observing and responding to interactions between self, other living things, and the environment; cares for the environment. Alternate Process Standard: (What All Students Should Do) Goal 1 Alt-3, Goal 4 Alt-3	
Graduate Goal 4	Graduates will solve problems or complete tasks.		
Graduate Goal 6	Graduates will participate in cause and effect activities.		
GLE:	Not Available		
STRAND:	Not Available		
Authentic Life Skills (What All Students Should Know)		IEP Code	API Code Authentic Learning Activities
Recognize cause and effect.		7810008	Use of vending machine, lights on and off, pushing handicapped door, music on CD player, conversations, termination of activity activating a switch—causing blender through a control unit—milk shakes, paper Mache, home made paper.
Maintain both arms straight down by side.		7500425	While walking in line to lunch or the bus, walking in grocery store.
Use the mouse to answer/maneuver through software programs.		7200026	
Activate computer command to print.		7200080	Create art design using the computer and have the student print own work; have the student responsible for printing all student art work, which would provide multiple teaching opportunities.
Make explanations using prior knowledge.		7810065	SI4.1 Read student social story or student interest story, and ask comprehension questions; ask student, while in a store how does the student know which line to stand in; ask student questions about what is needed to eat certain foods (fork, spoon, knife).
Explore how the seasons effect the behavior of plants and animals.		7810001	Water plants (sponges, water guns, plastic cups), feed fish, gardening with seasonal vegetables.
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.			

Science		Grades 6-8			
Graduate Goal 4	Graduates will solve problems or complete tasks.	Show-Me Standard SC-5 Processes (such as plate movement, water cycle, air flow) and interactions of earth's biosphere, atmosphere, lithosphere, and hydrosphere. Alternate Framework Standard AltSC-5 Identifying natural resources and their uses. Alternate Process Standard: (What All Students Should Do) Goal 1 Alt-3			
Graduate Goal 5	Graduates will follow routines.				
GLE:	Not Available				
STRAND:	Not Available				
Authentic Llife Skills (What All Students Should Know)		IEP Code	API Code	Authentic Learning Activities	NATURAL RESOURCES
Care for indoor and outdoor plants.	7810009		Plastic water bag and poke holes, squeeze sponge filled with water, water wand, spray mister, water gun, switch with tilting measuring cup, plant in sink and water in sink and let soak. Visual schedule--when to water, what to water, etc.		
Throw trash in waste receptacle.	7700057				
Identify materials that can be recycled.	7810010		Sorting material by glass, can, paper.		
Pick up yard waste and place in recycled bags.	7810080				
Investigate the source of energy that causes an increase in temperature of an object.	7810066		Regulate water to fill a container; touch items in the sun and in the shade; use hot water bottle to fill with cold water and then hot water; place hand lotion on arm at room temperature, and on the other arm with lotion warming in warm water.		
Prepare pouch meals.	6263050		Use pouch rice for cooking; make seal-a-meal snacks; make and eat instant pudding in a bag; microwave macaroni and cheese.		
Wash dishes by hand.	6332019				
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.					

Science Grades 6-8			
Graduate Goal 1	Graduates will communicate.	Show-Me Standard SC-6 Composition and structure of the universe and the motions of the object within it. Alternate Framework Standard AltSC-6 Identifying objects in the universe and results of the earth's motion. Alternate Process Standard: (What All Students Should Do) Goal 1 Alt-3, Goal 3 Alt-5	
Graduate Goal 4	Graduates will solve problems or complete tasks.		
GLE:	Not Available		
STRAND:	Not Available		
Authentic Life Skills (What All Students Should Know)		IEP Code	API Code Authentic Learning Activities
Match the season with the associated activities.		7810013	
Identify morning, afternoon and evening activities.		7810014	
Ask questions about events in the environment.		7810068	SI1.1c Program on an AAC device so the student can ask who is here today. Have the student ask the questions in the morning activity, usually asked by the teacher (student specific AAC method).
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.			

Science				Grades 6-8	
<u>Graduate Goal 2</u>	Graduates will make choices.	<u>Show-Me Standard SC-7</u> Processes of scientific inquiry (such as formulating and testing hypothesis). <u>Alternate Framework Standard AltSC-7</u> Using observations and measurement to answer questions. <u>Alternate Process Standard:</u> (What All Students Should Do) Goal 1 Alt-1, Goal 3 Alt-8			
<u>Graduate Goal 4</u>	Graduates will solve problems or complete tasks.				
<u>GLE:</u>	Not Available				
<u>STRAND:</u>	Not Available				
Authentic Life Skills (What All Students Should Know)		IEP Code	API Code	Authentic Learning Activities	
Locate the object needed to complete named snack.		7200100			
Fill a container.		7810079		Water bottle for refrigerator (by classmates); place clothes in laundry basket; place items in Ziploc bag for safe keeping, pencil/pen holder, paper towel; fill drawer with dish towels.	
Observe how mixtures are made by combining solids.		7810015	PP2.1b	Trail mix, granola mix, potting soil and vermiculite for plantings; mixing different colors of polymer clay.	
Prepare cereals.		6263024		Making hot and cold cereals.	
Prepare a simple nutritional snack.		6263029			
Load a dishwasher.		6332022			
Place disposable liners in trash receptacles.		6326013			
Measure ingredients using a color-marked measuring cup.		6263006			
Measure ingredients using a measuring cup.		6263004			
Read recipes for simple snacks.		5786019			
Recognize water as a liquid that dissolves some materials.		7810084		Make beverages; sweeten tea; make Jell-O.	
Pour without spilling.		5417004		Construct a wood project and stain wood; make milk paint; pour detergent in dishwasher; fill bird feeders; water plants.	
Use data as support for a reasonable explanation.		7810082	SI3.1b	Use visual cues to know what line to stand in; stand outside so student knows there is a need to put on a coat; have student explain how he/she knows it is time for PE; present picture and student gets activity.	
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.					
OBSERVATION AND MEASUREMENT					

Science Grades 6-8			
Graduate Goal 2	Graduates will make choices.	Show-Me Standard SC-8 Impact of science, technology, and human activity on resources and the environment. Alternate Framework Standard AltSC-8 Using technology and natural resources responsibly; cares for the environment. Alternate Process Standard: (What All Students Should Do) Goal 1 Alt-4, Goal 1 Alt-8, Goal 4 Alt-7	
Graduate Goal 4	Graduates will solve problems or complete tasks.		
Graduate Goal 5	Graduates will follow routines.		
GLE:	Not Available		
STRAND:	Not Available		
Authentic Life Skills (What All Students Should Know)		IEP Code	API Code Authentic Learning Activities
Wear a corrective device.		5171002	
Remove a corrective device.		5171006	
Walk with a walker on all surfaces		7500084	
Walk on uneven surfaces with assistive devices.		7500388	
Use long handled adaptive equipment to reach for objects.		5171038	
Wear hearing aids.		6434001	
Put on/take off hearing aids.		6434002	
Put on/take off glasses.		6428002	
Wear glasses.		6428001	
Clean glasses.		6428004	Use glass cloth and spray cleaner, rinse under water and dry.
Lock the brakes on a wheelchair.		5177001	
Propel a wheelchair up a ramp.		7500306	
Propel a wheelchair on rough and varied terrain.		5171045	Community fitness trails, mobility on school grounds, over various door thresholds; use the rubber floor cord covers and measure to the size of classroom thresholds, homeliving etc. doors, for student to cross over; play racing game over floor bumps.
Assessment of Student Performance: Performance tasks, student performance data, authentic assessment.			